REMARKS

Claims 1-27 are pending in this application. Claims 26 and 27 have been newly added. Claims 1, 5, 9, 10, 16, 19, 22 and 25 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicant regards as his invention. The applicant respectfully submits that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **August 28, 2003**.

Claim Rejections under 35 USC §112

Claims 5-14 and 16-25 are rejected under 35 USC §112, first paragraph, as failing to comply with the written description requirement.

Specifically, the Examiner asserts that the phrase "a change with time-lapse of an output characteristic" and the phrase "a change with time-lapse of a reference output characteristic" are not described in the specification. Taking the Examiner's comments into consideration claims 1, 5, 9, 10, 16, 19, 22 and 25 have been amended. The term "chronologically" has been substituted for "time lapse" and finds support on page 11, lines 5-6 and page 33, line 9 of the specification and implies values taken at a plurality of time points.

Therefore, withdrawal of the rejection of Claims 5-14 and 16-25 under 35 USC §112, first paragraph, is respectfully requested.

Claim Rejections under 35 USC §102

Claims 5, 8-10, 14, 16, 17, 19, 20, 22 and 25 are rejected under 35 USC §102(a) as being anticipated by Takehara et al. (U.S. Patent No. 5,669,987).

Takehara teaches a relative comparison on the basis of characteristics of another solar cell, solar cell strings or sub-arrays in the same system, measured at the same time, not a comparison with an absolute value (fixed value). Thus, Takehara assumes that the characteristics to be used as reference values are normal and hence, it is impossible to detect an abnormality with a system in which all the solar cells, solar cell strings or sub-arrays exhibit are abnormal.

The present invention, on the other hand, is free from this problem, because as reference values, it uses values which are calculated as described in claims 5, 9, 10, 19 and 22, and values which are measured in the same system at the time of normal operation in the past as described in claim 16. That is, comparison in the present invention is made with characteristics of the photovoltaic power system itself, not with characteristics of another solar cells, solar cell strings or sub-arrays in the same system. Moreover, according to the present invention, reference values are calculated in accordance with installation conditions, and hence comparatively accurate reference values are obtained, and the precision in diagnosis of normality/abnormality is improved.

Therefore, claims 1, 5, 9, 10, 16, 19, 22 and 25 patentably distinguish over the prior art relied upon by reciting, as exemplified by claim 5,

> "A method for diagnosing the normality/abnormality of an output of an installed photovoltaic power system, comprising the steps of: calculating a reference

output characteristic chronologically at the time of normal operation of the photovoltaic power system itself in accordance with an installation condition of said photovoltaic power system; measuring an output characteristic chronologically in said photovoltaic power system obtained during operation of the photovoltaic power system itself; comparing the calculated reference output characteristic chronologically with the measured output of said photovoltaic power system based on the comparison result." (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 5, 8-10, 14, 16, 17, 19, 20, 22 and 25 under 35 USC §102(a) as being anticipated by Takehara et al. (U.S. Patent No. 5,669,987) is respectfully requested.

Claim Rejections under 35 USC §103

Claims 1, 2, 4, 6, 11, 12, 18, 21 and 24 are rejected under 35 USC §103(a) as being unpatentable over Takehara et al. (U.S. Patent No. 5,669,987) in view of Takeda (U.S. Patent No. 5,594,313).

Takehara et al. describes a device and method for detecting an abnormality in a solar cell array. This device and method monitors electrical parameters of a solar cell, solar cell strings or sub-arrays. If the solar cell, the solar cell string or sub-array exhibits a relatively low output then an abnormality is determined and a warning is issued. In addition, if the solar cell, solar cell string or sub-array exhibits a large variation ratio then an abnormality is determined and a warning is issued.

The present invention is a diagnostic method and device for a photovoltaic power system. Reference output characteristics are stored in the system based upon installation conditions or based

upon past output characteristics. These reference output characteristics are then compared against output characteristics measured during the operation of the system. If the output characteristic falls below a lower limit diagnosis factor or above an upper limit diagnosis factor then an abnormality is detected.

Claim 1 is patentable for the same reasons discussed above. Claims 2, 4, 6, 11, 12, 18, 21 and 24 are allowable by virtue of their dependence upon allowable independent claims. Therefore, withdrawal of the rejection of Claims 1, 2, 4, 6, 11, 12, 18, 21 and 24 under 35 USC §103(a) as being unpatentable over Takehara et al. (U.S. Patent No. 5,669,987) in view of Takeda (U.S. Patent No. 5,594,313) is respectfully requested.

Claims 7, 13 and 23 are rejected under 35 USC §103(a) as being unpatentable over Takehara et al (U.S. Patent No. 5,669,987) in view Asaoka (Japanese Patent Publication No. 2000022192 to Mitsubishi, English Translation).

Asaoka describes a snow accumulation detector for solar cells that operates at night. This snow accumulation detector operates using a strobe light that illuminates the solar cells at night. The accumulated snow evaluation circuit (21) then compares a predetermined voltage taken earlier with a voltage taken during the test. Based upon this comparison and a determination is made whether snow has accumulated on the solar cells.

Claims 7, 13 and 23 are allowable by virtue of their dependence upon allowable independent claims. Therefore, withdrawal of the rejection of Claims 7, 13 and 23 under 35 USC §103(a) as

being unpatentable over Takehara et al (U.S. Patent No. 5,669,987) in view Asaoka (Japanese Patent Publication No. 2000022192 to Mitsubishi, English Translation) is respectfully requested.

Claim 3 is rejected under 35 USC §103(a) as being unpatentable over Takehara et al (U.S. Patent No. 5,669,987) in view of Takeda et al (U.S. Patent No. 5,594,313) as applied to claim 1 above, and further in view of Asaoka (Japanese Patent Publication No. 2000022192).

Asaoka describes a snow accumulation detector for solar cells that operates at night. This snow accumulation detector operates using a strobe light that illuminates the solar cells at night. The accumulated snow evaluation circuit (21) then compares a predetermined voltage taken earlier with a voltage taken during the test. Based upon this comparison and a determination is made whether snow has accumulated on the solar cells.

Claim 3 is allowable by virtue of their dependence upon an allowable independent claim. Therefore, withdrawal of the rejection of Claim 3 under 35 USC §103(a) as being unpatentable over Takehara et al (U.S. Patent No. 5,669,987) in view of Takeda et al (U.S. Patent No. 5,594,313) as applied to claim 1 above, and further in view of Asaoka (Japanese Patent Publication No. 2000022192) is respectfully requested.

New Claims

New claims 26 and 27 are added to this application. New claims 26 and 27 find support in the specification and the originally filed claims. Claims 26 and 27 are allowable for the same reasons discussed regarding claims 1 and 9. Therefore, allowance of claims 26 and 27 is respectfully requested.

CONCLUSION

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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